OSIsoft®

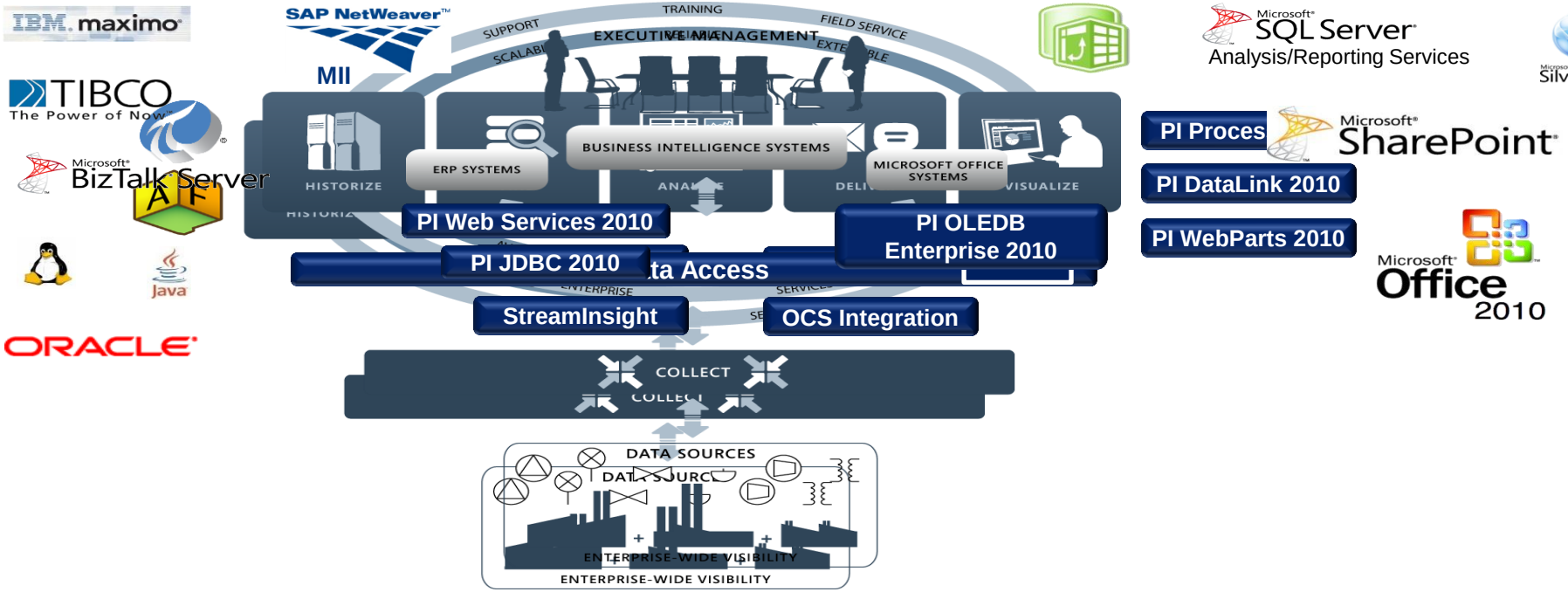
REGIONAL SEMINARS 2012

The Power of Data

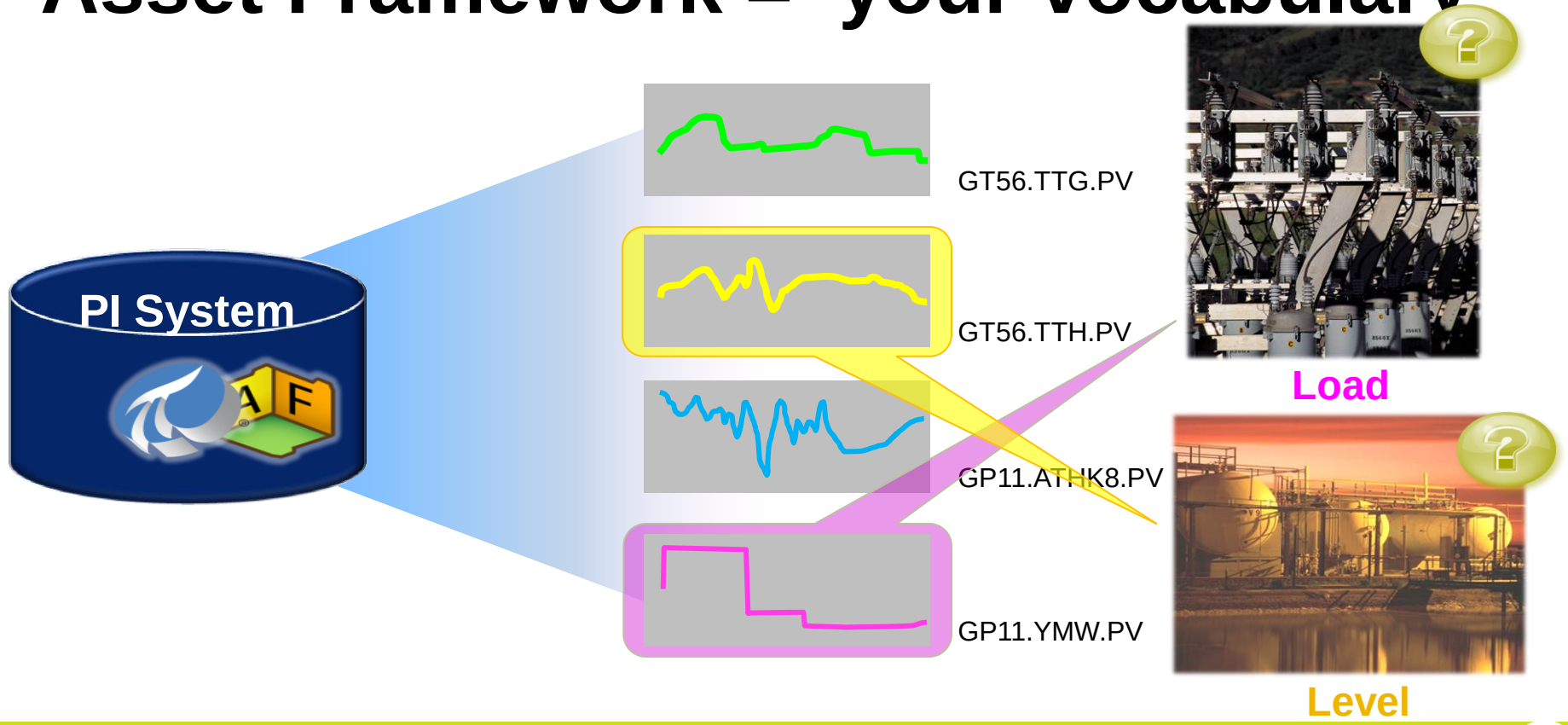
PI Asset Framework

Presented by **OSIsoft**

The PI System

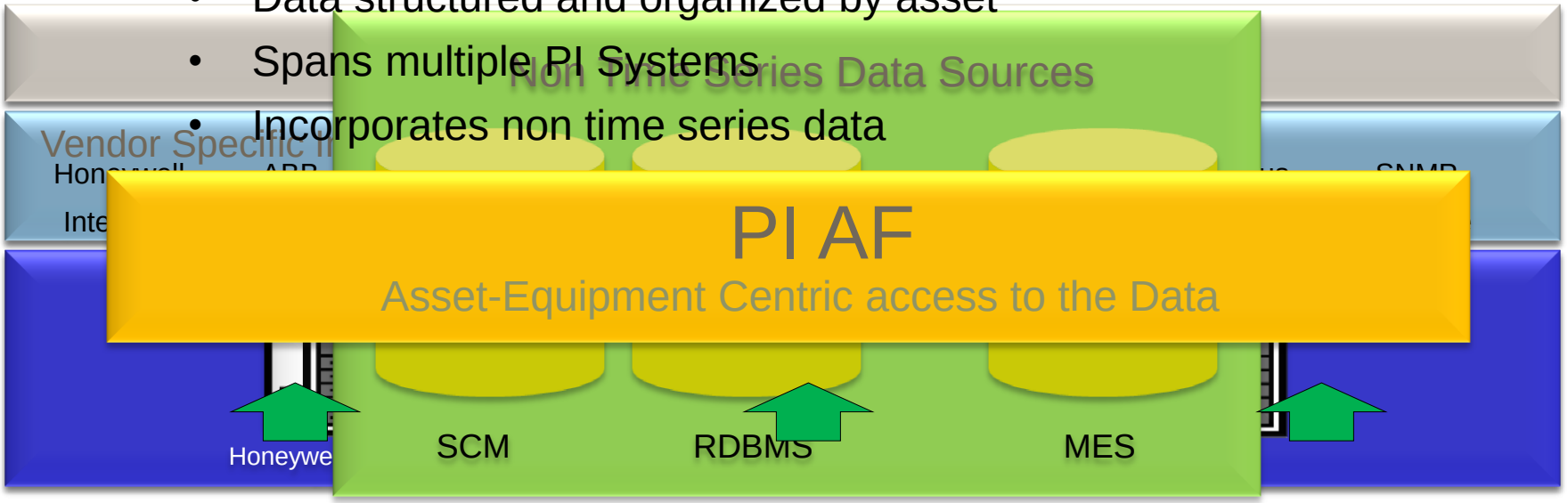


Asset Framework = your vocabulary



spans all your data

- Data structured and organized by asset
- Spans multiple PI Systems
- Incorporates non time series data

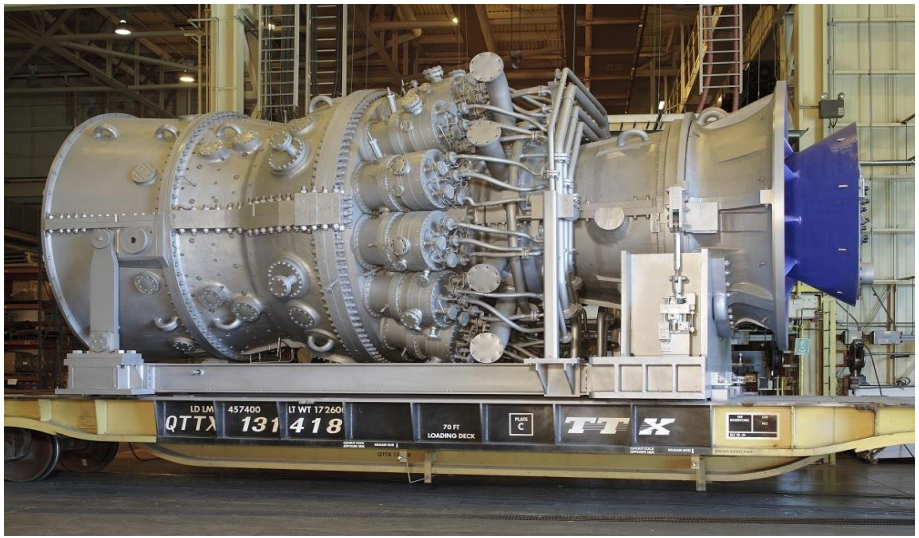


Asset Centric PI System

- **PI AF provides an asset centric view of your plant**
- **Establish relationships**
  - Build hierarchies, categories and connectivity models
  - Relate asset properties to your disparate data
- **Standardize, common view**
  - Templates for similar assets
- **Apply domain knowledge via PI Notifications and analyzes**
- **Access your data via PI Data Access products**

Build a Complete Picture of Your Asset

PI Tags
- Inlet pressure
- Inlet flow
- Ambient temperature

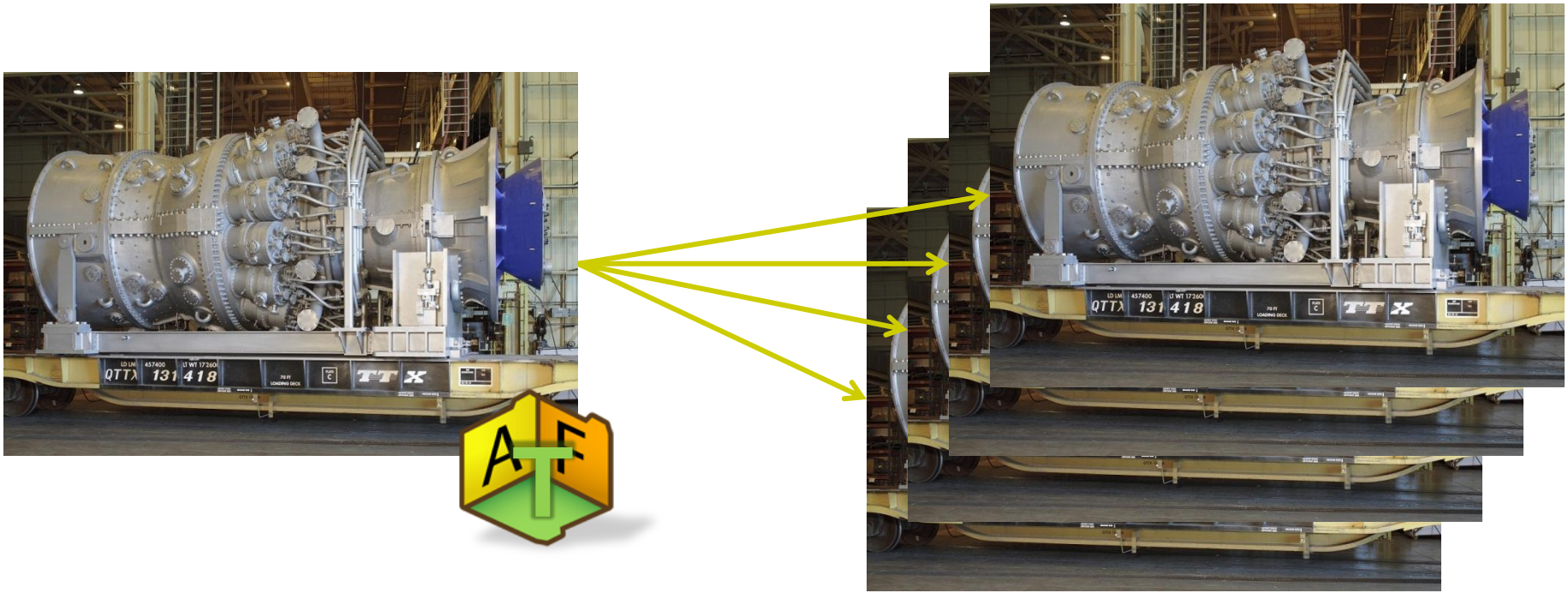


PI Tags
- Exhaust temperature
- Exhaust flow
- Measured MW output

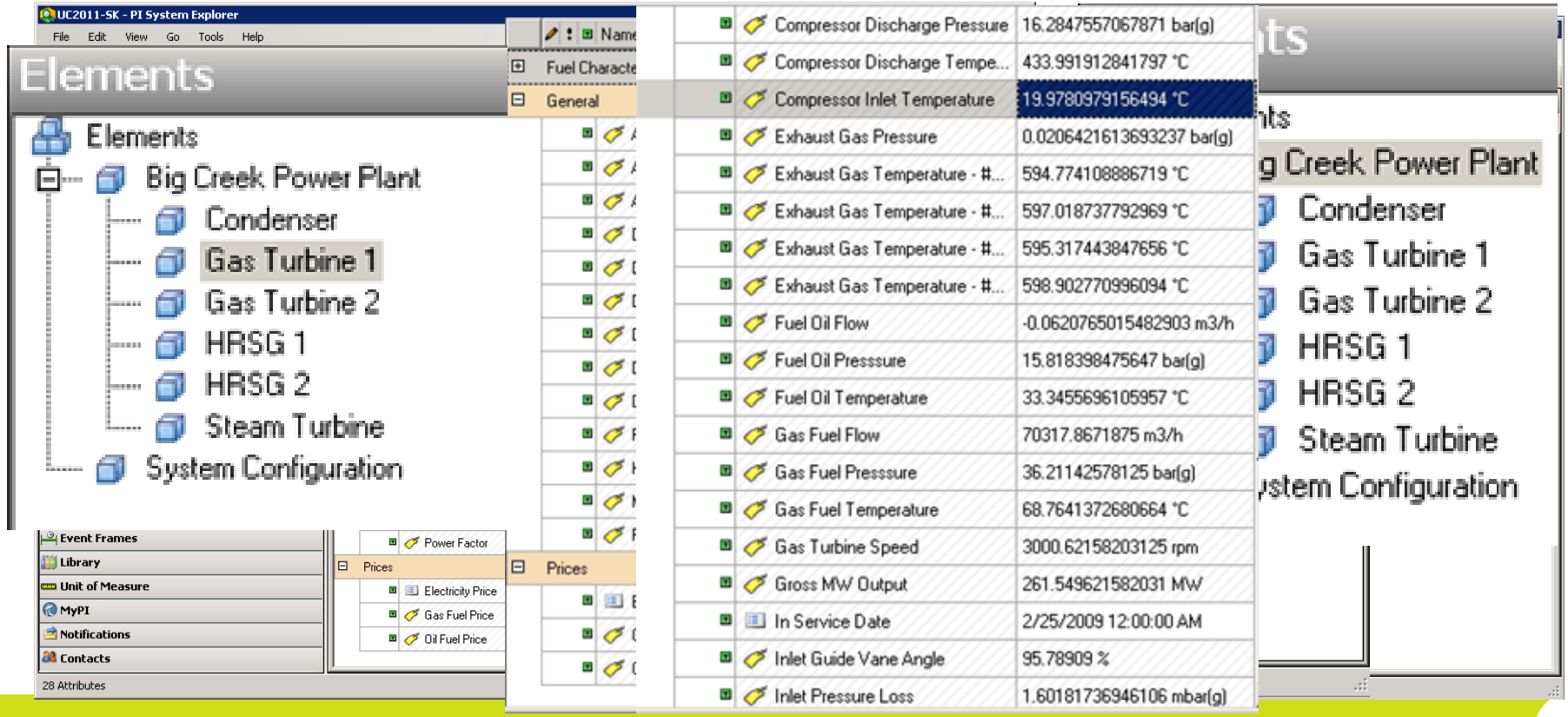
External Databases
- Performance curves
- Last service date
- Design documents
- Inspection best practice

Calculations
- Performance calculations
- KPI's

Common View for Similar Assets

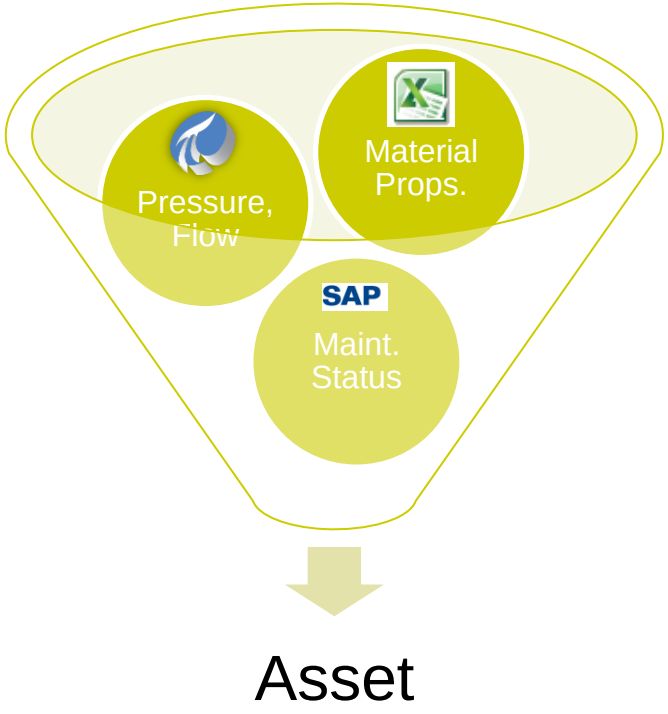


Add Value to your PI System



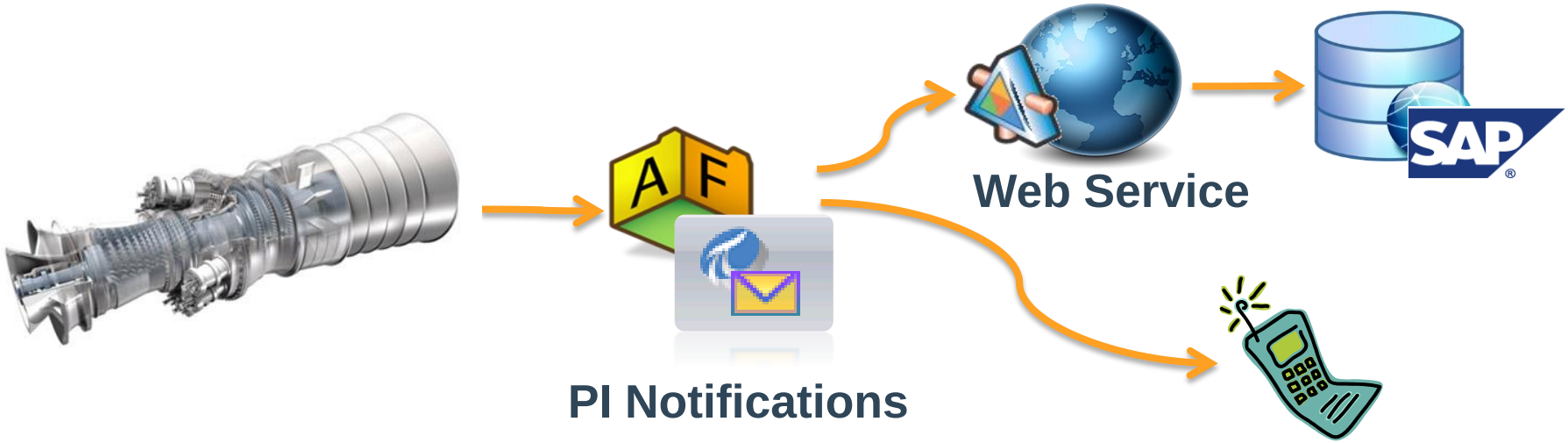
Add Value to your PI System

- **Tie asset properties to your data**
  - Static values, PI Tags from multiple PI Servers, static or linked Tables
  - Custom data references to other data sources



Add Value to your PI System

"One of GT exhaust thermocouples has been acting up… Let's keep an eye on it and create a work order for maintenance if it fluctuates more than 5% in 5 seconds. Make sure Bob is notified of this also."



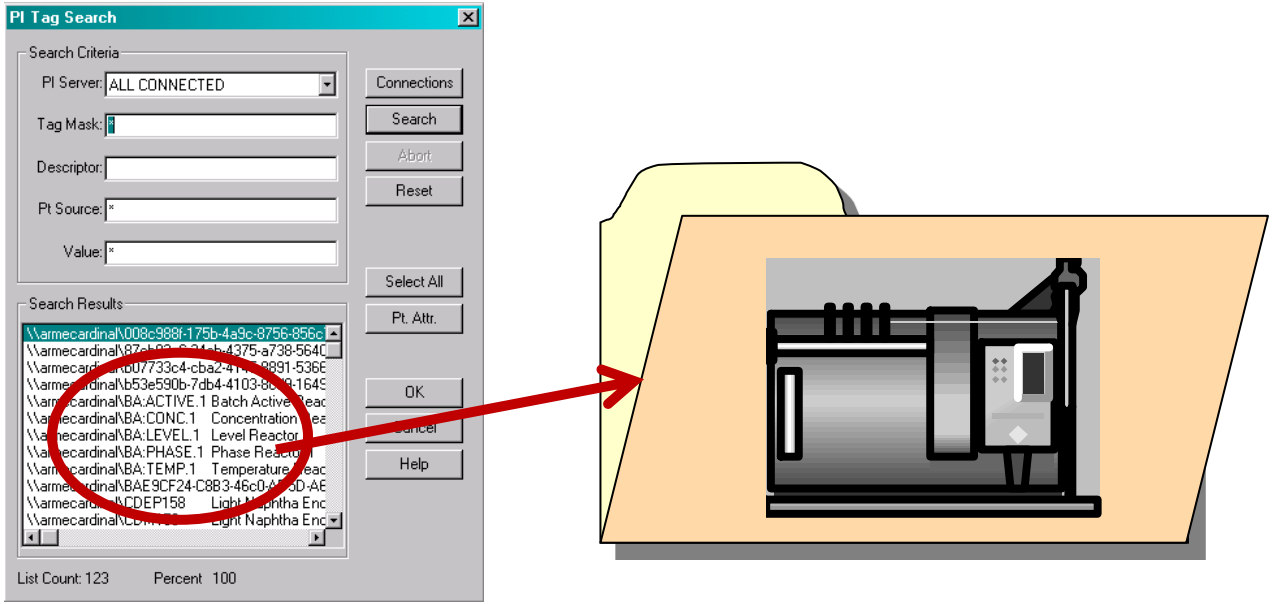
Add Value to your PI System
Event Frames Are Part of Asset Framework

- GT #2 tripped again last night!!
- How many times has this happened in the last year?
- What were the operating conditions when it tripped?
- Let's find and gather all these events and analyze them.

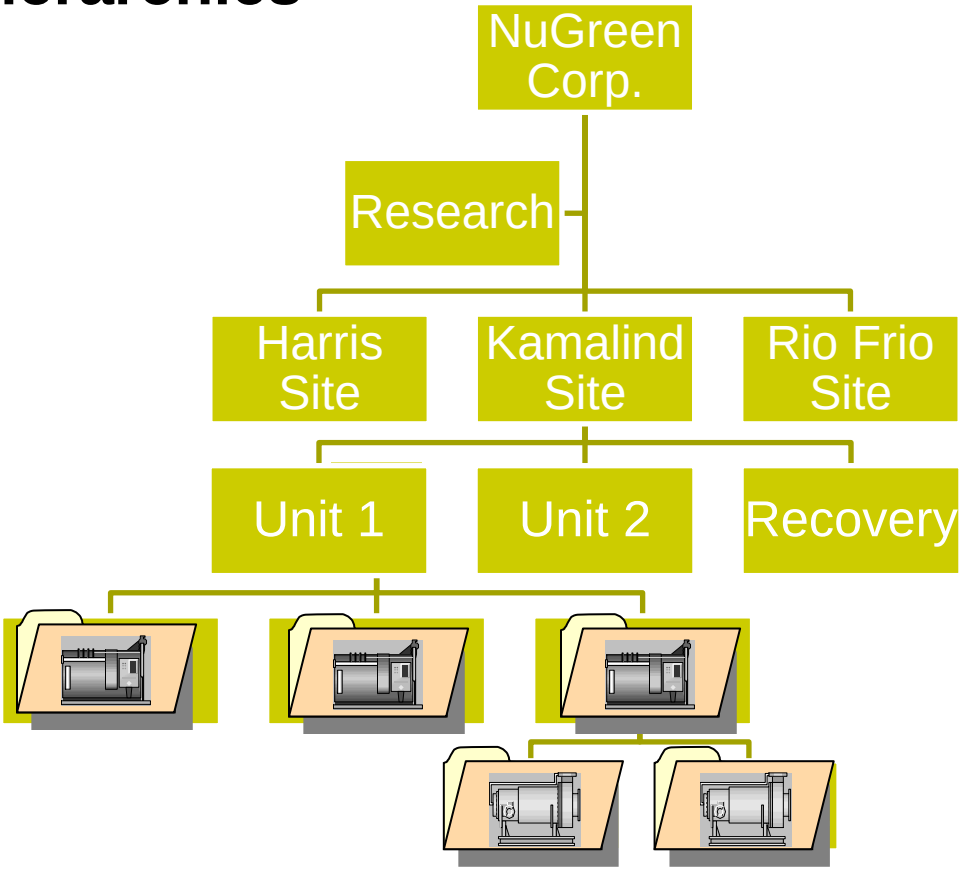
Downtime Events
- Asset of interest
- Start/End Times
- Reason Codes
- Asset Conditions

How to begin

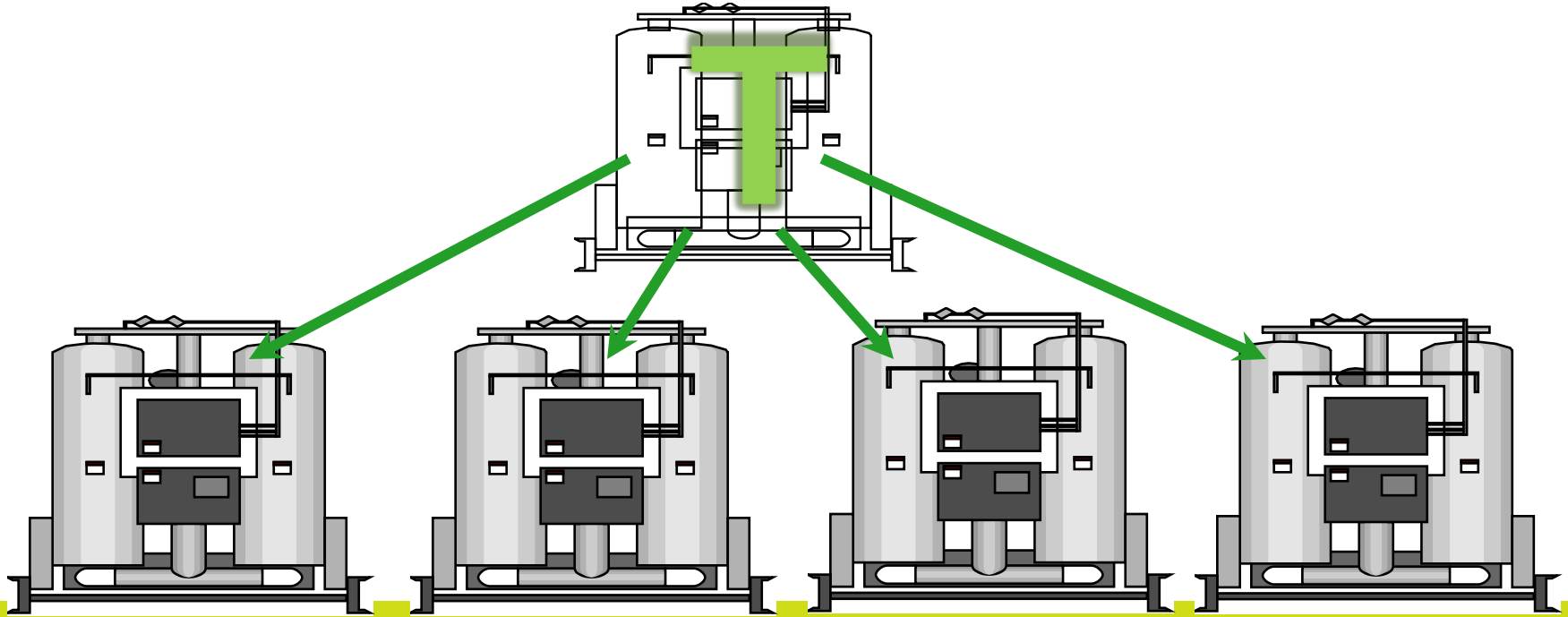
Sort Your Tags into Elements Which Represent Your Equipment



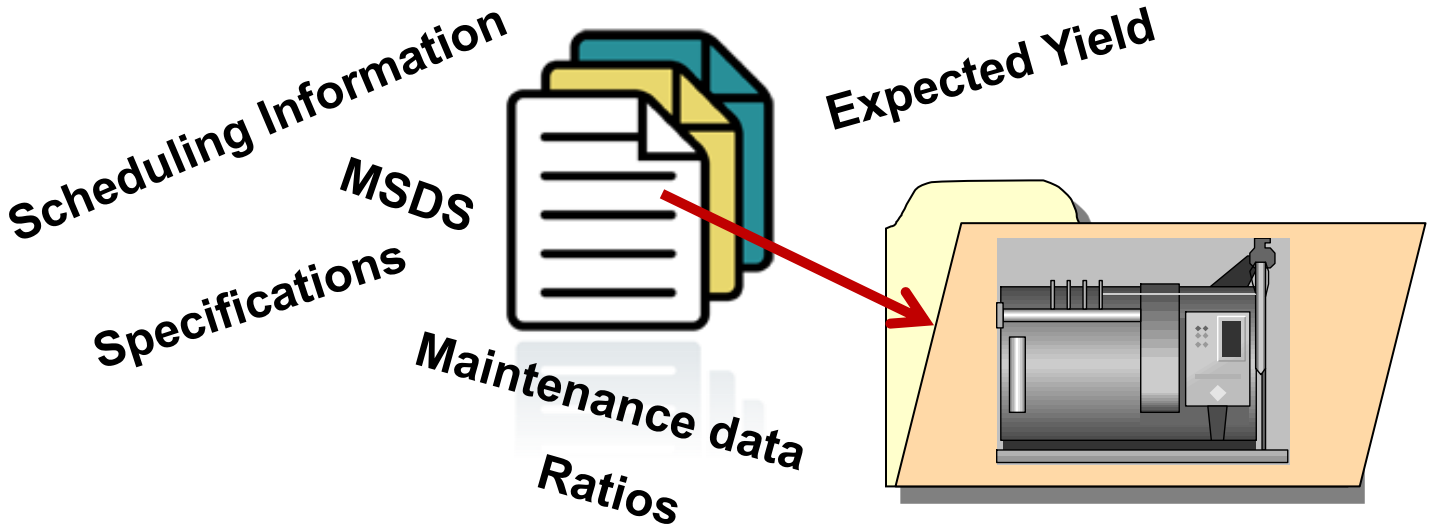
Organize the Assets into Hierarchies



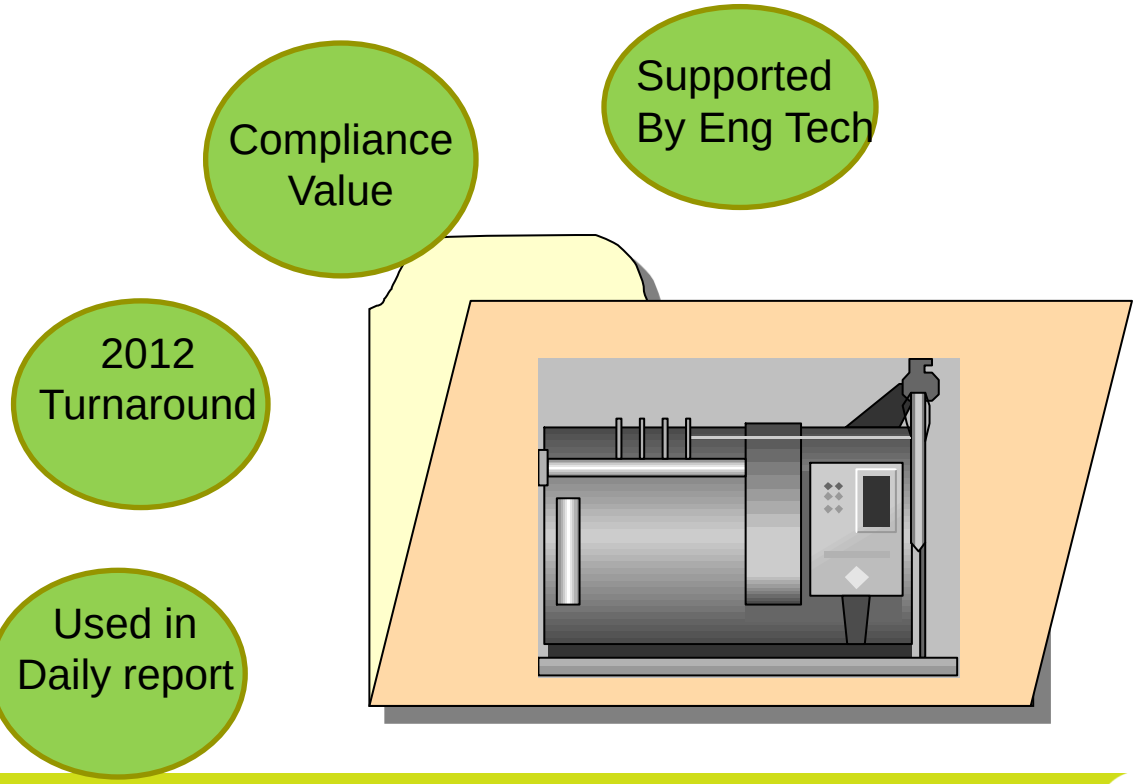
Manage and Extend Elements by creating Powerful Templates



Add Efficiency Calculations, KPIs, Reference Data from Relational Databases and Other Information to Add More Value



Add Key Words (Categories) to Make Them Easier to Search for



It Might Take a Team

Process "nerds" – subject matter experts - who understand the data well enough to build the calculations and define the relationships

&

IT "geeks" who can wrangle the XML and SQL, to build large databases

AF – Putting AF into Best Practice

Shaping your data by:

1. Defining types of assets
   Schema how to attribute Elements
   » Templates

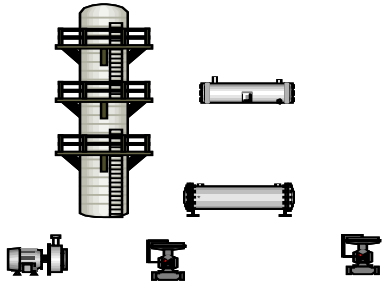
2. Association to a “real” asset
   Created from Template
   » Elements

3. Describing the “real” asset
   having Units Of Measurements (UOM)
   can come via data references from everywhere
   » Attributes

4. Physical/logical asset structure
   » Hierarchy

5. Assets connectivity
   Model : Collections of connected elements
   » Model

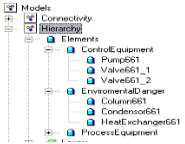
Condensor
Heatexchanger
Column
Valve
Pipe
Pump

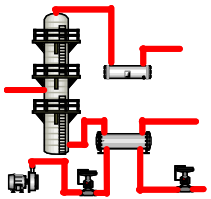


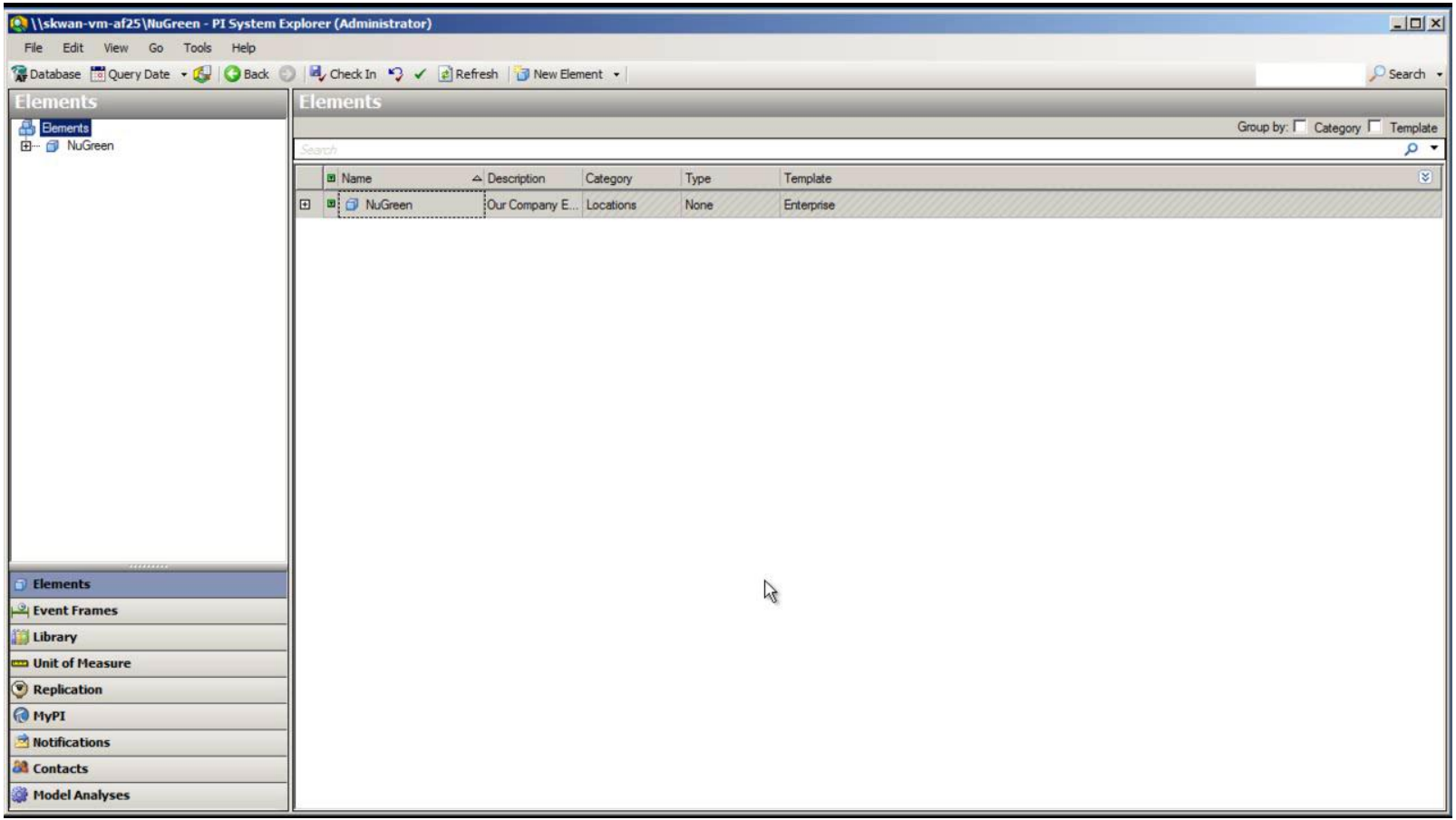
Column661
Condensor661
P661_1
P661_2
HeatExchanger661
Valve661_1
Valve661_2

OpeningGrade
InspectionResult
LastInspection
SerialNumber
XZY

PI Point: \\MOBILEVBC\Valve661_1.OpeningGrade
Table Lookup: SELECT InspectionResult FROM …
Table Lookup: SELECT LastInspection FROM …
Table Lookup: SELECT SerialNumber FROM …
Formula: A=OpeningGrade;[A*0.98]



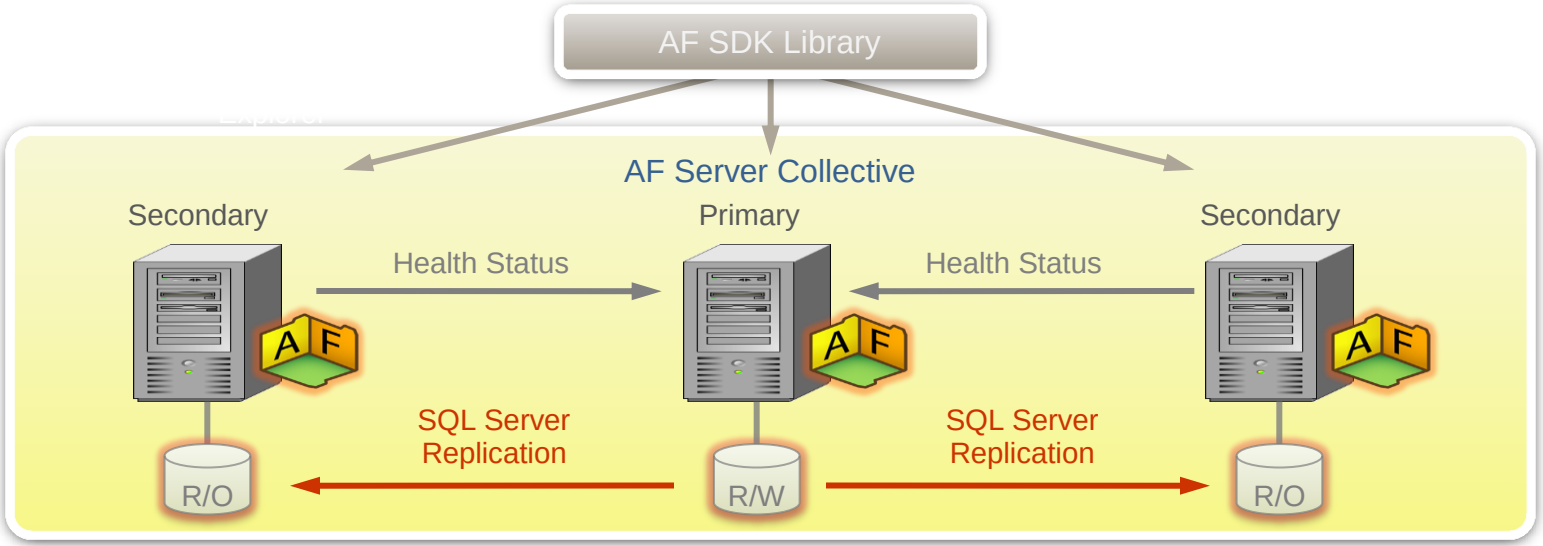




Insight PI Asset Framework

AF HA Collective

PI Notifications, AF-based PI Clients
(PI WebParts, ProcessBook, DataLink, etc.)



Extending PI AF

- Enhance functionality of PI AF by your own Plugins
  - Access new data sources (Data References)
  - Notifications to users or systems (Delivery Channels)
- Easy deployment – no ‘roll-outs’ – just register

- Create **domain/industry specific** applications
- Focus on **doing it right**
- Personal development **PI System**
- **Community experience**
- Tech Conference: **OSIsoft vCampus Live!**

```
AFTimeRange tr = new AFTimeRange(new AFTime(tex
AFValues vals = _afDB.Elements["Pump123"].Attri

lstValues.Items.Clear();
foreach(AFValue val in vals)
{

    lstValues.Items.Add(val.Value.ToString() +
}
```

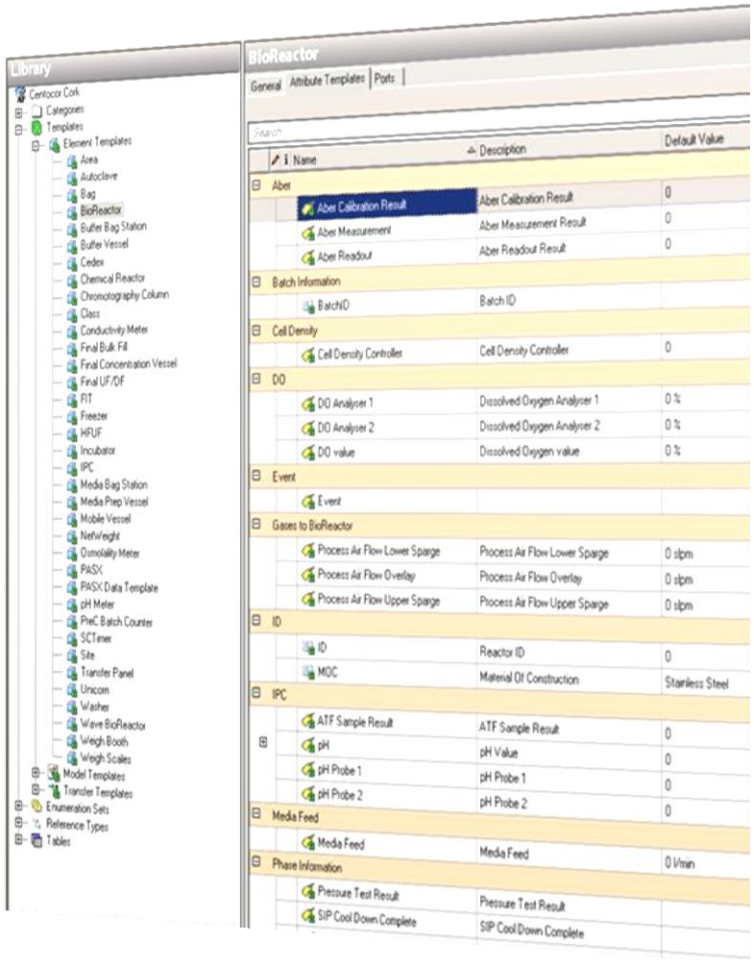
Mapping assets – User example UC 2012
PI Asset Framework – PI AF in Janssen

Super Class concept.

- Class based templates – built in conjunction with process and subject matter experts.
- Only process critical information grouped together in a logical model.
- Ensures that the entire organisation have a common taxonomy.

PAS|X \ PI AF

- Using Unit based templates allows us to build unit based MBR elements that can be applied on other sites.



THANK YOU

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